



# ADOBE DAM/DESERT HILLS

AREA DRAINAGE MASTER PLAN

November 2003

## NEXT STEPS

Your feedback from the November 18, 19, and 20, 2003, public meetings will help us determine the preferred alternatives for this project. Please take the time to complete a comment form and either leave it with us tonight or mail it to Afshin Ahouraiyan at the address listed below. You may also fax your comment sheet to him at 602-506-4601 or e-mail him at [afa@mail.maricopa.gov](mailto:afa@mail.maricopa.gov).

Your comments will be reviewed and evaluated with other criteria to determine the preferred drainage alternative for each site. Once the preferred drainage alternatives have been determined, the District will incorporate these into the Recommended Plan. The Recommended Plan will be available to the public for review in Spring 2004. The final set of public meetings will also be in Spring 2004 where the District will present the Recommended Plan to the public. Before the Recommended Plan can be implemented, it has to be approved by the Flood Control Board of Directors and funding for this project must be available.

## STUDY SCHEDULE

Tasks	2002				2003				2004			
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Data Collection												
Floodplain Delineation												
Alternatives Formulation												
Flood Response Plan												
Alternatives Evaluation												
Recommended Alternative												
Implementation Plan												
Public Meetings												

## CONTACT

Afshin Ahouraiyan, Project Manager  
Flood Control District of Maricopa County  
2801 West Durango Street  
Phoenix, AZ 85009  
Phone: (602) 506-1501  
E-mail: [afa@mail.maricopa.gov](mailto:afa@mail.maricopa.gov)

Please visit the Flood Control District of Maricopa County's Web site for updated project information:  
[www.fcd.maricopa.gov](http://www.fcd.maricopa.gov) and click on "District Projects" under the quick links section.

Welcome to the public meeting for the Adobe Dam/Desert Hills Area Drainage Master Plan (ADMP). This ADMP is a comprehensive study of the drainage and erosion issues in the study area (see study area map). The study team has completed an extensive information-gathering effort that is the basis for the drainage alternatives being presented tonight.

## STUDY PURPOSE

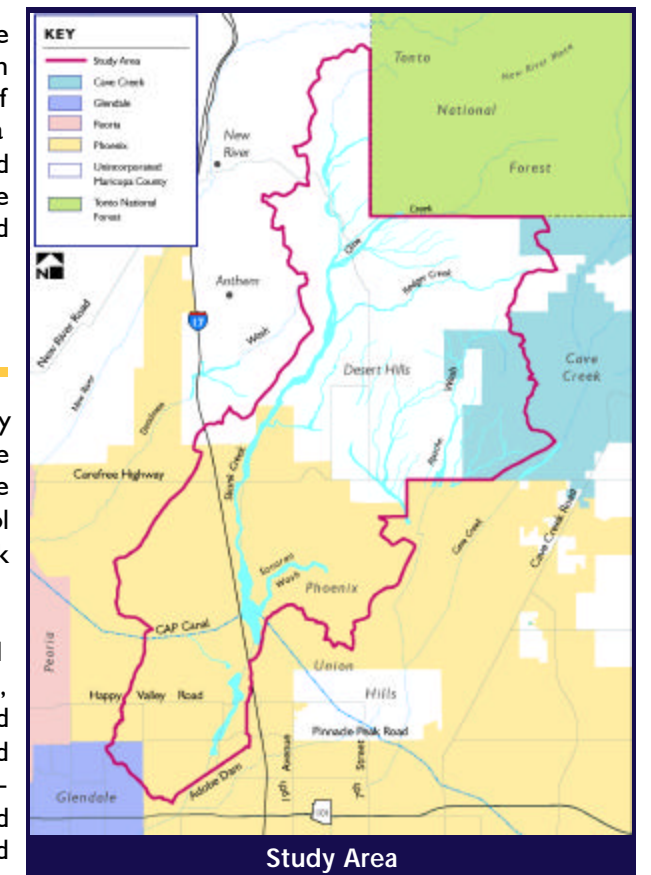
The Flood Control District of Maricopa County (District) completed the Skunk Creek Watercourse Master Plan (WCMP) in 2001. In the WCMP, the District studied a broad approach to flood control and floodplain management along the Skunk Creek watercourse corridor.

As part of the WCMP, the District identified and evaluated local flood and erosion hazard areas, defined building setbacks in erosion zones, established a flood detection gauge network, and implemented an acquisition and relocation program for high-hazard-area residents. In the plan, the District recommended that an ADMP be prepared to better understand and address drainage issues within the watershed. The goals of the study include:

- Identifying and developing solutions for drainage and flooding issues in residential areas;
- Defining building setbacks to protect residents from erosion hazards along several active washes;
- Identifying and evaluating the level of hazard for homes located in regulatory floodways;
- Ensuring that activities by new residents do not increase runoff to Skunk Creek, or negatively impact downstream neighbors;
- Establishing a watershed-wide flood response plan; and
- Evaluating hazardous flood conditions at bridge and dip crossings.

## TONIGHT'S PUBLIC MEETING

The purpose of tonight's meeting is to present the latest study developments; provide information regarding the drainage alternatives; and to get your



feedback, concerns, and comments regarding the proposed alternatives.

Members of the study team are available to listen to your comments and address your specific concerns. If you wish to submit your comments in writing, comment sheets are available and can be returned tonight, or mailed or faxed to the address and/or number listed on the comment sheet.

## STUDY AREA

The study area is bounded by the Tonto National Forest to the north, the Adobe Dam to the south, the 40<sup>th</sup> Street alignment (north of Carefree Highway) and the Seventh Street alignment (south of Carefree Highway) to the east, and the watershed boundary between Skunk Creek and the New River to the west.

STUDY PROGRESS

Since receiving citizen input from public meetings held last November, the Adobe Dam/Desert Hills ADMP study team has completed:

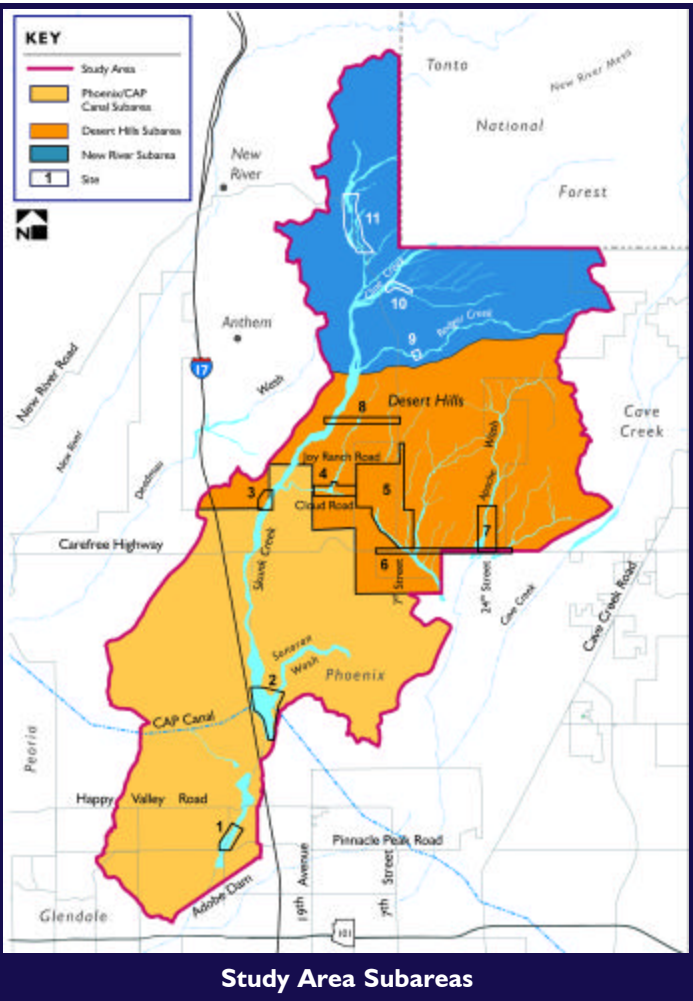
- collecting data,
- modeling existing hydrologic conditions,
- assessing environmental issues,
- delineating new floodplains,
- evaluating multi-use opportunities,
- characterizing existing landscape aesthetics,
- identifying erosion hazards, and
- formulating preliminary drainage alternatives.

During the development of the drainage alternatives, meetings were held with various agencies including the City of Phoenix, Arizona State Land Department, Maricopa County, Town of Cave Creek, Central Arizona Project (CAP), and the Arizona Department of Transportation.

The analysis of all the collected data allowed the study team to develop and evaluate numerous potential drainage alternatives. The results of the preliminary evaluation of these alternatives are presented here tonight for your review and comment.

ALTERNATIVE DEVELOPMENT

The study area has been broken down into three subareas: Phoenix/CAP Canal, Desert Hills, and New River (see study area subareas map). These areas were identified because of their jurisdictional boundaries and similar watershed characteristics. Within the subareas, 11 sites were identified based on specific drainage/erosion issues from agency and citizen input. The study team has spent the past several months developing and evaluating potential drainage alternatives for each of the sites for the 100-year flood. The alternatives developed and evaluated are focused on designing cost-effective regional drainage alternatives that are sensitive to the natural and cultural resources and are acceptable to the community. For each



of the 11 specific sites, four types of alternatives were developed. A general definition of each type of alternative is provided below.

The Structural, Nonstructural, Combination, and No Action Alternatives are described on the following pages in terms of the drainage/erosion issues. In addition to the 11 specific sites, watershed-wide alternatives also have been considered. Watershed-wide alternatives addressed identified problems that are located throughout the study area such as road crossings and properties in floodway, floodplain, and erosion hazard areas.

ALTERNATIVES TYPES			
Structural	Nonstructural	Combination	No Action
<ul style="list-style-type: none"><li>• physical modifications/improvements</li><li>• examples of structural solutions are basins, channels, levees, bridges, bank protection, grade control</li></ul>	<ul style="list-style-type: none"><li>• no physical modifications/improvements</li><li>• examples of nonstructural solutions are community education, flood insurance, flood response plan, development guidelines</li></ul>	<ul style="list-style-type: none"><li>• structural and nonstructural components</li></ul>	<ul style="list-style-type: none"><li>• watershed remains in current conditions</li></ul>

WATERSHED-WIDE ALTERNATIVES

(Costs Depend on Action Taken)

- Drainage/Erosion Issue**  
41 properties located in regulatory floodway
- Flood-prone property mitigation

- Drainage/Erosion Issue**  
102 properties located in delineated erosion hazard zones

- Structural Alternative**
- Erosion protection

- Nonstructural Alternative**
- Rules of development

- Combination Alternative**
- Erosion protection
  - Rules of development

- No Action Alternative**
- No improvements

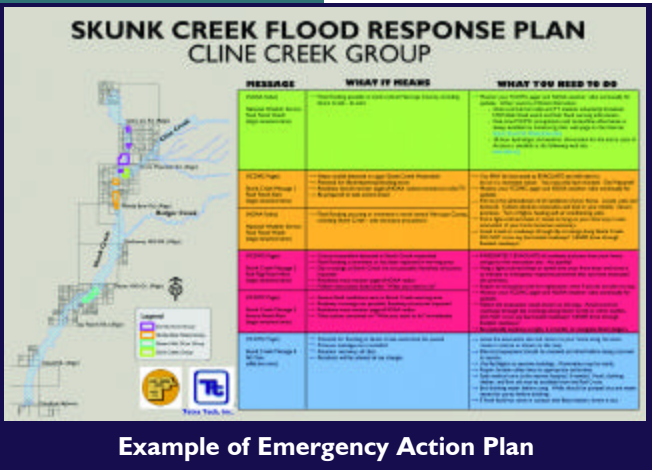
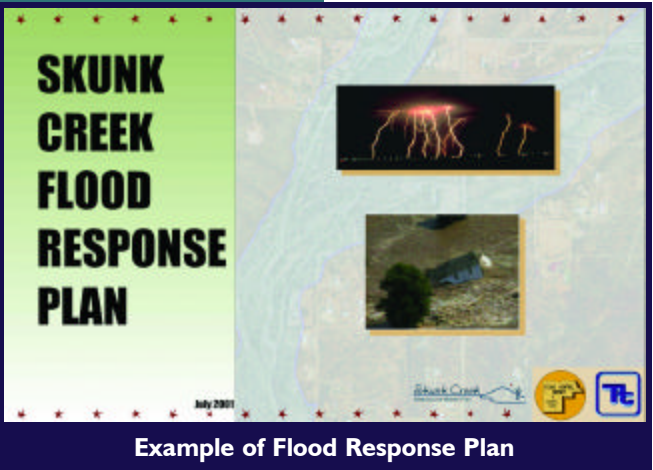
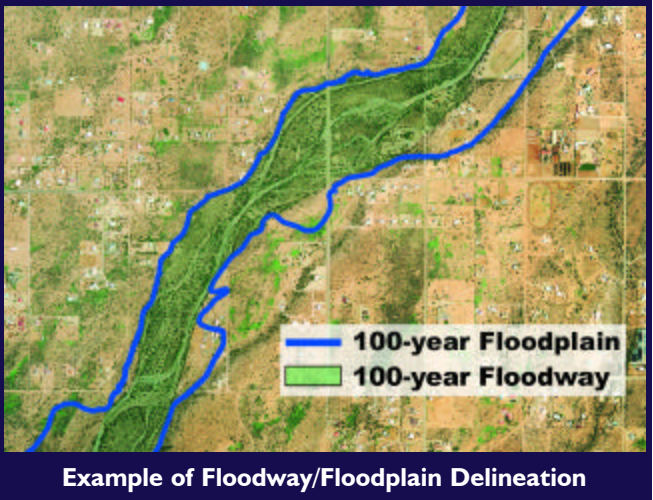
- Drainage/Erosion Issue**  
Inadequate dip roadway crossings

- Structural Alternative**
- New culverts

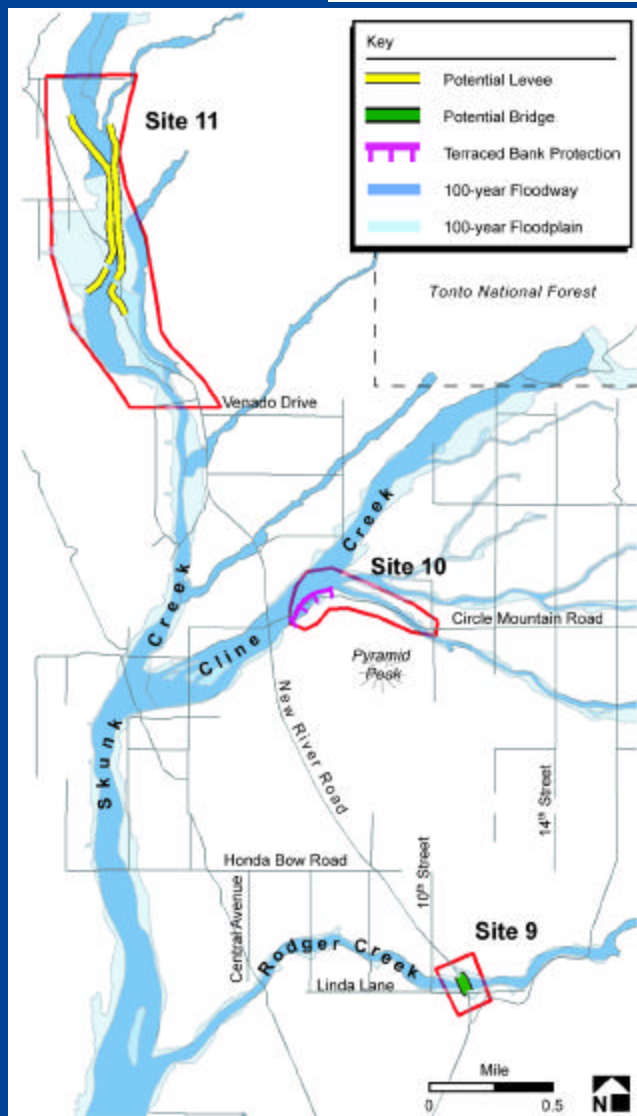
- Nonstructural Alternative**
- Flood response plan
  - Signs or staff gauges

- Combination Alternative**
- New culverts
  - Flood response plan
  - Signs or staff gauges

- No Action Alternative**
- No improvements







New River – Structural Alternative

## NEW RIVER

### SITE 9 – RODGER CREEK/NEW RIVER ROAD

#### Drainage/Erosion Issue

- Rodger Creek flooding over New River Road

#### Structural Alternative (estimated cost \$2.5 million)

- New bridge
- Bridge crossing more wildlife-friendly than existing culvert
- Opportunity to build bridge compatible with proposed regional trail from Lake Pleasant to Cave Creek

#### Nonstructural Alternative

- Flood response plan

#### Combination Alternative (estimated cost \$2.6 million)

- Flood response plan
- New bridge

#### No Action Alternative

- No improvements

### SITE 10 – CLINE CREEK/CIRCLE MOUNTAIN ROAD

#### Drainage/Erosion Issue

- Potential erosion of Circle Mountain Road embankment along Cline Creek

#### Structural Alternative (estimated cost \$120,000–200,000)

- Terraced bank protection with naturalized treatment
- Opportunity for aesthetic design of terraced bank protection

#### Nonstructural Alternative

- Flood response plan

#### Combination Alternative (estimated cost \$130,000–258,000)

- Flood response plan
- Terraced bank protection with naturalized treatment

#### No Action Alternative

- No improvements

### SITE 11 – SKUNK CREEK/BRIDGE AT NEW RIVER ROAD

#### Drainage/Erosion Issue

- Flooding of New River Road around the bridge at Skunk Creek crossing

#### Structural Alternative

(estimated cost \$4–6 million)

- New levees
- Channel improvements
- Opportunity to link to regional trail proposed for New River Road through the site

#### Nonstructural Alternative

- Flood response plan
- Floodway/floodplain delineation

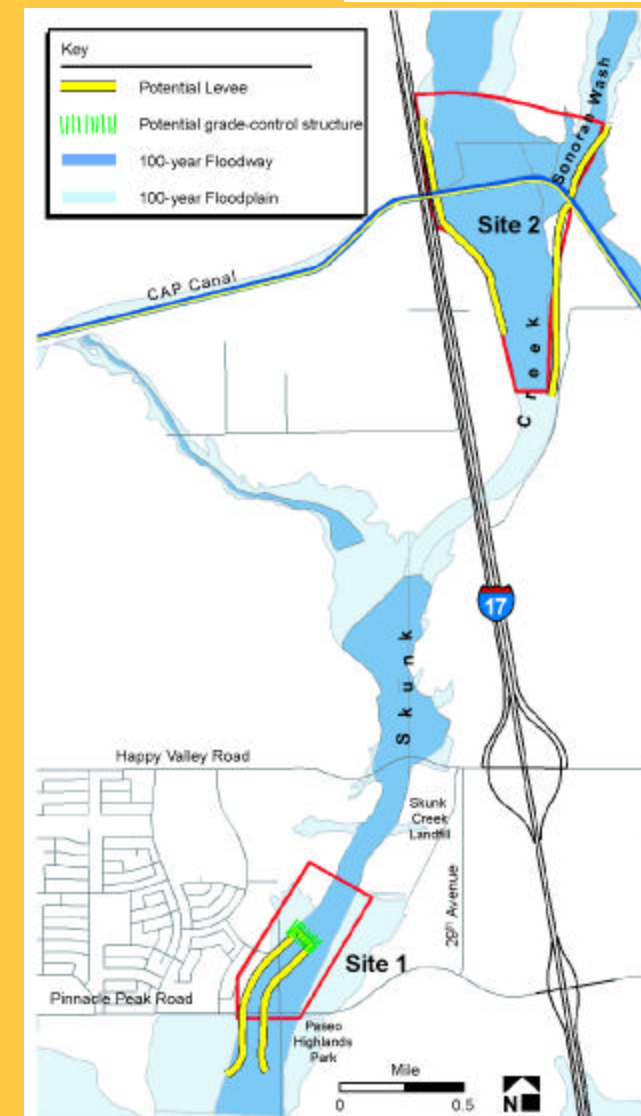
#### Combination Alternative

(estimated cost \$4.2–6.2 million)

- Flood response plan
- Floodway/floodplain delineation
- New levees
- Channel improvements

#### No Action Alternative

- No improvements



Phoenix/CAP Canal – Structural Alternative

## PHOENIX/CAP CANAL

### SITE 1 – SKUNK CREEK/PINNACLE PEAK ROAD AND 35<sup>TH</sup> AVENUE

#### Drainage/Erosion Issues

- Flooding of 35<sup>th</sup> Avenue and Pinnacle Peak Road
- Insufficient bank height to contain stormwater in the Skunk Creek channel

#### Structural Alternative (estimated cost \$7.5–8 million)

- New levees from the bridge upstream to where they tie into the existing levees
- Grade-control structure
- Trail linkage opportunities to Adobe Dam Recreation Area, Thunderbird Park, and Paseo Highlands Park
- Aesthetic improvement opportunities
- Opportunity to improve degraded habitat in Skunk Creek

#### Nonstructural Alternative

- Flood response plan

#### Combination Alternative (estimated cost \$7.6–8.1 million)

- Flood response plan
- New levees from the bridge upstream to where they tie into the existing levees
- Grade-control structure

#### No Action Alternative

- No improvements

### SITE 2 – SKUNK CREEK/CAP CANAL

#### Drainage/Erosion Issues

- Flooding on Skunk Creek between I-17 and levee downstream of CAP Canal
- I-17 flooded upstream of CAP Canal

#### Structural Alternative (estimated cost \$6.3–6.8 million)

- New levees from the location of the existing levees upstream to CAP Canal and continuing upstream 0.5 mile
- Opportunity for linkage to future regional trail along CAP Canal
- High-quality habitat affected along Sonoran Wash

#### Nonstructural Alternative

- Flood response plan
- Floodway/floodplain delineation

#### Combination Alternative (estimated cost \$6.5–7 million)

- Flood response plan
- New levees from the location of the existing levees upstream to CAP Canal

#### No Action Alternative

- No improvements

## DESERT HILLS

### SITE 3 – SKUNK CREEK/27<sup>TH</sup> AVENUE AND CLOUD ROAD

#### Drainage/Erosion Issue

- Current Cloud Road alignment passes through Skunk Creek floodway

#### Structural Alternative

(estimated cost \$850,000)

- Construct new roadway within new alignment to remove the roadway from Skunk Creek channel
- Opportunity to link to trails/recreational facilities in the Tramonto development
- Opportunity to reconnect wash vegetation

#### Nonstructural Alternative

- Flood response plan

#### Combination Alternative

(estimated cost \$1 million)

- Flood response plan

- New roadway constructed within new alignment
- Floodway/floodplain delineation

#### No Action Alternative

- No improvements

### SITE 4 – SKUNK TANK WASH

#### Drainage/Erosion Issues

- Flooding of Skunk Tank Wash
- Properties in the floodway of Skunk Tank Wash

#### Structural Alternative

(estimated cost \$7.3 million)

- New channel along 7<sup>th</sup> Avenue
- New culverts across 7<sup>th</sup> Avenue
- Two detention basins
- Opportunity to reconnect wash vegetation
- Drainage improvements constructed adjacent to existing properties

#### Nonstructural Alternative

- Flood response plan

#### Combination Alternative (estimated cost \$7.4 million)

- Flood response plan
- New channel along 7<sup>th</sup> Avenue
- New culverts across 7<sup>th</sup> Avenue
- Two detention basins

#### No Action Alternative

- No improvements

### SITE 5 – DESERT LAKE WASH/7<sup>TH</sup> STREET CROSSING TO DOWNSTREAM OF CLOUD ROAD

#### Drainage/Erosion Issue

- Flooding of properties along Desert Lake Wash downstream of Cloud Road

#### Structural Alternative (estimated cost \$3.7 million)

- New channel along 7<sup>th</sup> Street
- New culverts across 7<sup>th</sup> Street
- New channel from Joy Ranch Road to Cloud Road
- New detention basin upstream of Cloud Road
- New channel from Cloud Road to just below Galvin Street and associated culvert crossings
- Opportunity to create long wildlife corridor along Desert Lake Wash to link to trails and open space at Desert Mountain Middle School and state land parcel

#### Nonstructural Alternative

- Flood response plan

#### Combination Alternative (estimated cost \$3.8 million)

- Flood response plan
- New channel along 7<sup>th</sup> Street
- New culverts across 7<sup>th</sup> Street
- New channel from Joy Ranch Road to Cloud Road
- New detention basin upstream of Cloud Road
- New channel from Cloud Road to just below Galvin Street and associated culvert crossings

#### No Action Alternative

- No improvements

### SITE 6 – CAREFREE HIGHWAY/CENTRAL AVENUE TO EAST OF 24<sup>TH</sup> STREET

#### Drainage/Erosion Issue

- Overtopping of Carefree Highway during 100-year flood

#### Structural Alternative (estimated cost \$2 million)

- New culverts to pass 100-year flows
- Opportunity to improve Carefree Highway for multi-use trail

#### Nonstructural Alternative

- Flood response plan

#### Combination Alternative (estimated cost \$2.1 million)

- Flood response plan
- New culverts to pass 100-year flows

#### No Action Alternative

- No improvements

### SITE 7 – APACHE WASH/24<sup>TH</sup> STREET

#### Drainage/Erosion Issue

- Flooding of 24<sup>th</sup> Street at Apache Wash crossing

#### Structural Alternative (estimated cost \$4 million)

- Roadway removed from Apache Wash channel and realigned
- Opportunity to improve aesthetics of wash corridor
- Roadway shifted from high-quality habitat along Apache Wash to low-quality habitat in adjacent upland area

#### Nonstructural Alternative

- Flood response plan

#### Combination Alternative (estimated cost \$4.1 million)

- Flood response plan
- New roadway within new alignment

#### No Action Alternative

- No improvements

### SITE 8 – SKUNK CREEK/DESERT HILLS DRIVE

#### Drainage/Erosion Issue

- Flooding of Desert Hills Drive at Skunk Creek crossing

#### Structural Alternative (estimated cost \$6–7 million)

- New bridge
- Bridge crossing over Skunk Creek more wildlife-friendly than current dip crossing
- Emergency vehicle access during flooding
- Opportunity for aesthetic bridge design

#### Nonstructural Alternative

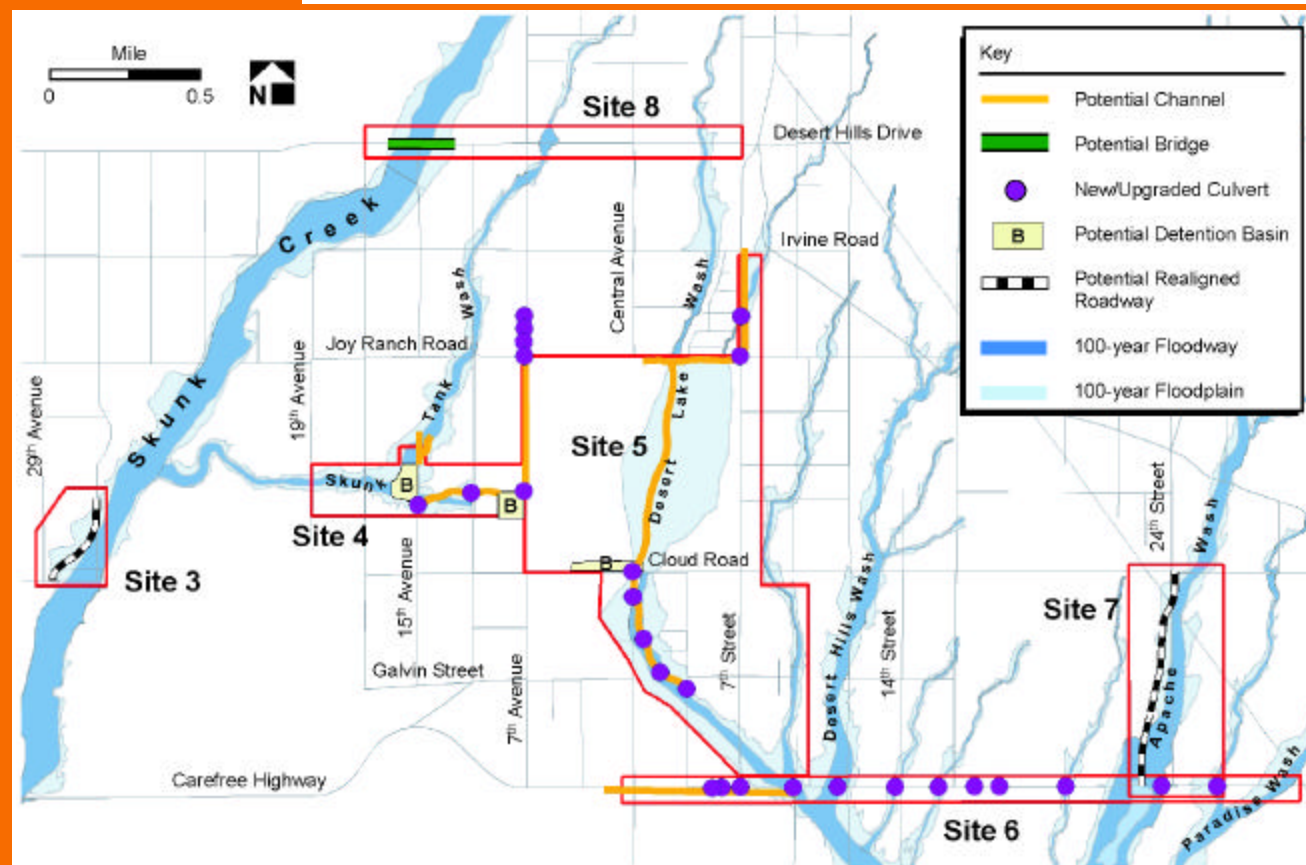
- Flood response plan

#### Combination Alternative (estimated cost \$6.1–7.1 million)

- Flood response plan
- New bridge

#### No Action Alternative

- No improvements



Desert Hills – Structural Alternative